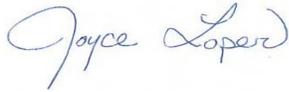


# NP 305 Crop Production Panel Report



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Joyce Loper, Scientific Quality Review Officer  
(January 2012-December 2013)

9/8/2014  
Date



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Michael A. Grusak, Scientific Quality Review Officer  
(January 2014-December 2015)

9/16/2014  
Date



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Michael S. Strauss, Peer Review Program Coordinator

9/11/2014  
Date



**Office of Scientific Quality Review**  
Agricultural Research Service  
United States Department of Agriculture

## Introduction

This Panel Report provides the background of the 2014 National Program (NP) 305 Crop Production Panel Review. The project plans reviewed by the panels were applicable to the mission of the National Program to *“develop and transfer sound, science-based information and technologies for productive and profitable food, fiber, and floral/ornamental crop production systems that meet consumer demands for high quality, affordable products, grower needs for a stable income and competitiveness in the global marketplace, worker needs for a safe working environment, and the public’s desire for maintaining or improving environmental quality.”*

In collaboration with the Office of Scientific Quality Review (OSQR), the National Program Leaders, Drs. Kevin Hackett and Sally Schneider, divided 24 plans into seven panels. After considering several candidates, Dr. Joyce Loper, Scientific Quality Review Officer (SQRO), appointed a Chair for each of the seven panels (Table 1).

Table 1. Crop Production Panels

Panel	Panel Chair	Panel Meeting Date	Number of Panelists	Number of Projects Reviewed
Panel 1: Small Fruit Production Management	Dr. Michele Warmund, Professor & State Fruit Extension Specialist, Div Plant Sciences, Univ Missouri, Columbia, MO	October 29, 2013	5	4
Panel 2: Tropical and Subtropical Crops	Dr. L. Gene Albrigo, Professor Emeritus, Citrus Res & Educ Ctr, Univ Florida, Lake Alfred, FL	October 21, 2013	4	3
Panel 3: Horticultural and Ornamental Crops	Dr. Joyce Latimer, Asst Dept Head for Extension & Professor, Horticulture, Virginia Tech, Blacksburg, VA	October 23, 2013	5	4
Panel 4: Mechanization and Technology	Dr. Daniel Reynolds, Professor & G.B. Triplett Endowed Chair of Agronomy, Dept Plant & Soil Sci, Mississippi State, MS	December 3, 2013	5	3
Panel 5: Sustainable Systems	Dr. Steven Pueppke, Director, Global & Strategic Initiatives, Assoc Vice Pres for Res & Grad Studies, College Agric & Natural Resources, Michigan State Univ, East Lansing, MI	November 13, 2013	4	3
Panel 6: Temperate Crops	Dr. Jim Schupp, Assoc Professor & Center Director, Fruit Research & Extension Center, Penn State Univ, Biglerville, PA	October 30, 2013	3	2
Panel 7: Bees	Dr. Ken Richards, Retired Research Manager, Agriculture & Agri-Food Canada, Saskatoon, Saskatchewan, Canada	November 12, 2013	3	5

## Panel Review Results

Along with the panel’s written recommendations, OSQR sends each Area Director a worksheet that shows each reviewer’s judgment of the degree of revision their project plan requires. This judgment is referred to as an “action class.” The action classes of the panelists are also converted to a numerical equivalent, averaged, and a final action class rating is assigned.

Scientists are required to revise their project plans as appropriate and submit a formal statement to OSQR through their Area Director demonstrating their response to the Panel’s recommendations. The project plans are implemented following approval and certification from the SQRO.

Action classes are defined below.

**No Revision Required (score: 8).** The project plan is feasible as written, requires only minor clarification or revision to increase quality to a higher level.

**Minor Revision Required (score: 6).** The project plan is feasible as written, requires only minor clarification or revision to increase quality to a higher level.

**Moderate Revision Required (score: 4).** The project plan is basically feasible, but requires changes or revision to the work on one or more objectives, perhaps involving alteration of the experimental approaches in order to increase quality to a higher level and may need some rewriting for greater clarity.

**Major Revision Required (score: 2).** There are significant flaws in the experimental design and/or approach or lack of clarity which hampers understanding. Significant revision is needed.

**Not Feasible (score: 0).** The project plan, as presented, has major scientific or technical flaws. Deficiencies exist in experimental design, methods, presentation, or expertises which make it unlikely to succeed.

For plans receiving one of the first three Action Classes (No Revision, Minor Revision, and Moderate Revision) scientists respond in writing to panel comments, revise their project plan as appropriate, and submit the revised plan and responses to OSQR through their Area Office. These are reviewed by the Officer and, once he/she is satisfied that all review concerns have been satisfactorily addressed, the project plan is certified and may be implemented.

When the Action Class is Major Revision or Not Feasible, responses and revised plans are provided as above, but must then be re-reviewed by the panel, which provides a second set of comments and Action Class. If the re-review Action Class is No Revision, Minor or Moderate revision the project plan may be implemented after receipt of a satisfactory response and Officer certification. Plans receiving major revision or not feasible scores on re-review fail review. The action class and consensus comments are provided to the Area but there is no further option for revision. Failed plans are terminated, reassigned, or restructured at the discretion of the Area and Office of National Programs.

### **NP 305 Program Overview**

The following is a summary of the comments made at the panel debriefings in the third cycle. Panelists felt that ARS plays an important role in research in areas where extramural funding is lacking; it is a good use of resources. They found it good to have input into the research as it strengthens the work. They appreciated seeing the process for determining ARS research. One panelist was pleasantly surprised to see collaborations outside ARS, noting that while this may be the norm it is not the perception of the norm outside ARS. Panels felt that the stronger plans had collaborations with land grants and aligned better with stakeholder needs although there is

still fairly limited work with land grants. They did note that on occasion, the space limits reduce detail in the plans and thus make for a more challenging review.

### Score Analysis

Table 2 shows the initial and final scores for the third cycle expressed as percentages for the NP 305 Crop Production Panels. All plans passed review. In Table 3, all cycles of the NP 305 Crop Production Panels initial and final scores are compared. The third cycle has the highest average initial review score (minor; 5.22) followed by the first (moderate, 4.88) and second (moderate, 4.89) cycles. All cycles had an average final score of minor revision with the third cycle having the highest (5.87) as compared to the first (5.74) and second (5.60) cycles.

It would appear, looking at the current review data that larger panels tend to give a lower initial score (Figure 1). Note however the low  $R^2$  value and large standard deviation (SD). When data for all three review cycles are included the trend remains but  $R^2$  is lower and SD is larger (Figure 2). Adding the larger amount of data from all third cycle reviews illustrates that with sufficient data the apparent relationship disappears (Figure 3). Thus it is concluded that any apparent relationship results from the wide degree of variation in relatively small datasets.

Figure 4 shows that there is no correlation between the number of scientists (expressed as scientist-years) on a plan and initial score. Figure 5, which shows all the review panels in the third cycle, confirms this.

Figure 6 shows the initial review scores for all three cycles of the Crop Production Panel. All cycles had plans that did not pass initial review but Figure 7 shows in final review all plans completed review and were certified.

Table 2. Proportion of initial and final scores for the third (2014) cycle expressed as percentage of all reviewed and the average initial numerical score for the NP 305 Crop Production Panels.

Third Cycle, 2013	Initial Review						Final Review					
	% No Rev	% Min Rev	% Mod Rev	% Maj Rev	% Not Feas	Avg Initial Score	% No Rev	% Min Rev	% Mod Rev	% Maj Rev	% Not Feas	Avg Final Score
Small Fruit Production (4)	0.0	50.0	50.0	0.0	0.0	5	0.0	50.0	50.0	0.0	0.0	5
Tropical and Subtropical Crops (3)	33.3	33.3	33.3	0.0	0.0	5.83	33.3	33.3	33.3	0.0	0.0	5.83
Horticultural & Ornamental Crops (4)	50.0	0.0	0.0	50.0	0.0	5	75.0	25.0	0.0	0.0	0.0	7.28
Mechanization and Technology (3)	0.0	0.0	66.7	33.3	0.0	3.77	33.3	0.0	66.7	0.0	0.0	5.27
Sustainable Systems (3)	0.0	66.7	0.0	33.3	0.0	4.83	0.0	100.0	0.0	0.0	0.0	5.5
Temperate Crops (2)	0.0	100.0	0.0	0.0	0.0	6.34	0.0	100.0	0.0	0.0	0.0	6.34
Bees (5)	20.0	60.0	20.0	0.0	0.0	5.87	20.0	60.0	20.0	0.0	0.0	5.87
<b>Totals</b>	14.8	44.3	24.3	16.7	0.0	5.2	23.1	52.6	24.3	0.0	0.0	5.87

Table 3. Proportion of initial and final scores for all cycles expressed as percentage of all reviewed and the average initial numerical score for the NP 305 Crop Production Panels.

	Initial Review						Final Review					
	% No Rev	% Min Rev	% Mod Rev	% Maj Rev	% Not Feas	Avg Initial Score	% No Rev	% Min Rev	% Mod Rev	% Maj Rev	% Not Feas	Avg Final Score
First Cycle (19)	21.1	15.8	47.4	10.5	5.3	4.88	26.3	26.3	47.4	0.0	0.0	5.74
Second Cycle (22)	0.0	45.5	40.9	13.6	0.0	4.89	9.1	50.0	40.9	0.0	0.0	5.6
Third Cycle (24)	16.7	41.7	25.0	16.7	0.0	5.22	25.0	45.8	29.2	0.0	0.0	5.87

Figure 1. Panel Size vs. Initial Review Score for the Third Cycle of the NP 305 Crop Production Panels.

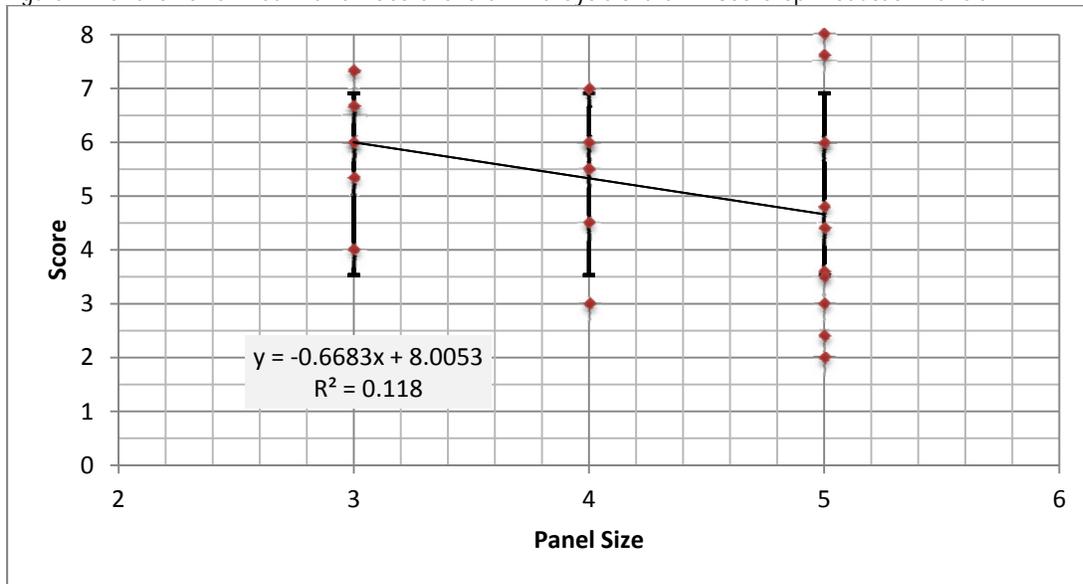


Figure 2. Panel Size vs. Initial Review Score for All Three Cycles of the NP 305 Crop Production Panels.

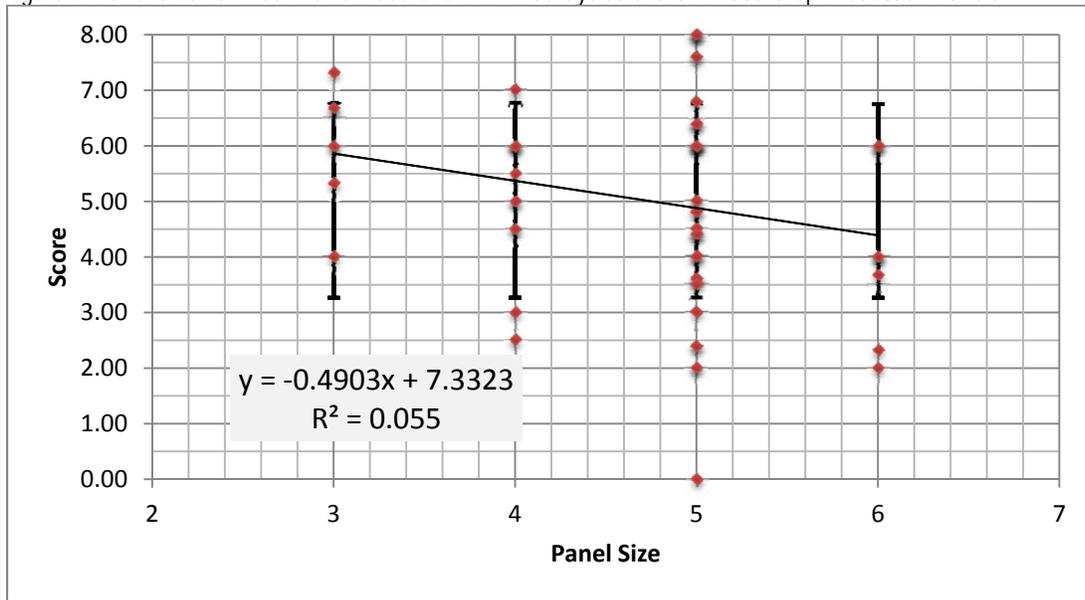


Figure 3. Panel Size vs. Initial Review Score for All Third Cycle Panels.

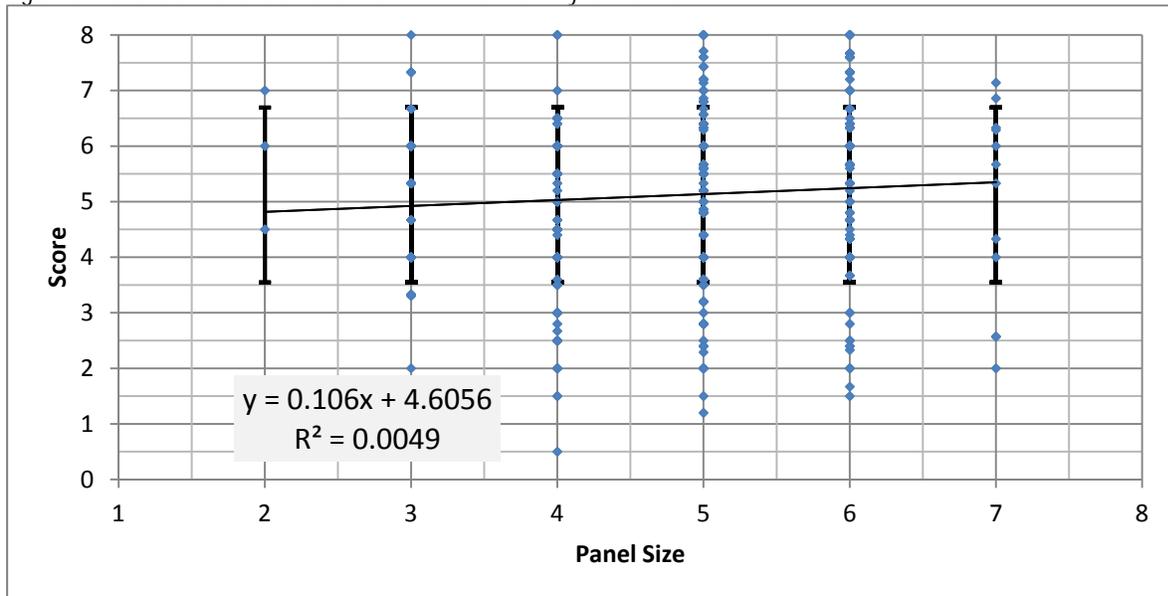


Figure 4. Total SY on a Plan vs. Initial Review Score for the Third Cycle of the NP 305 Crop Production Panels.

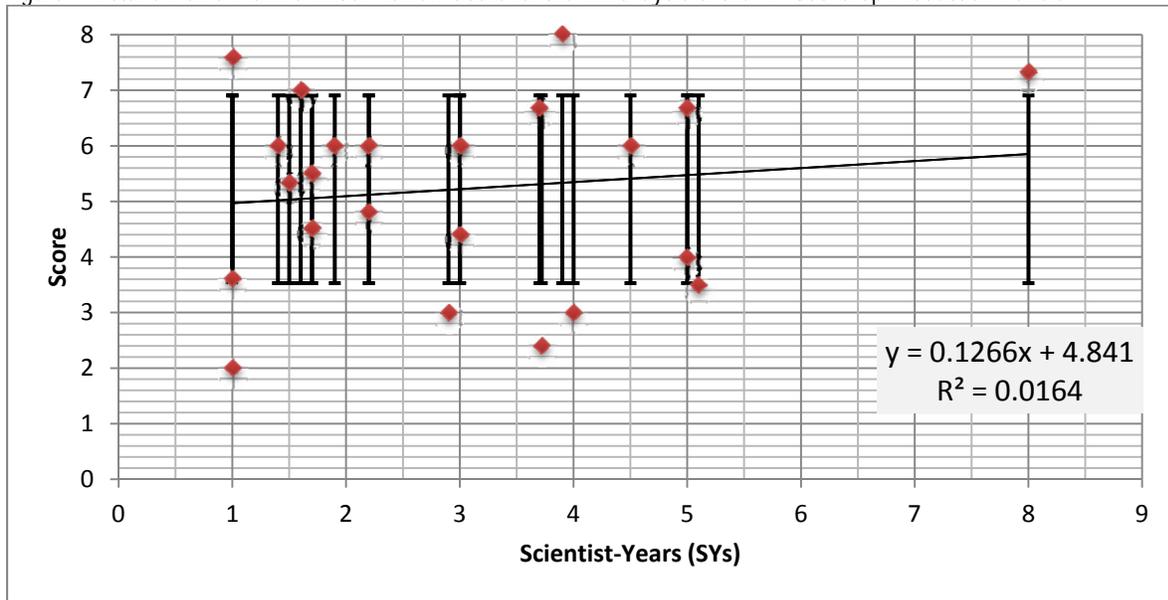


Figure 5. Total SY on a Plan vs. Initial Review Score for All the Third Cycle Panels.

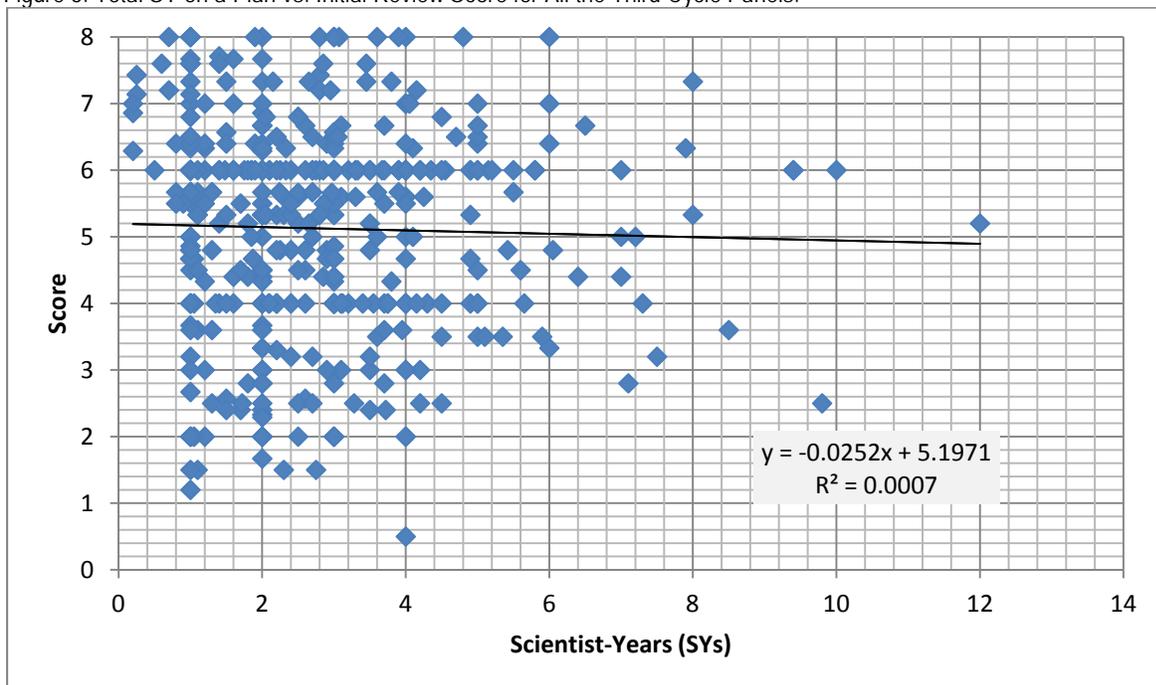


Figure 6. Initial Review Scores for the First (2003), Second (2008) and Third (2014) Cycle Distribution for the NP 305 Crop Production Panels (4.88; 4.89; 5.22, respectively). The number of plans reviewed by each cycle is in parentheses. Number over columns is the number of plans receiving that score.

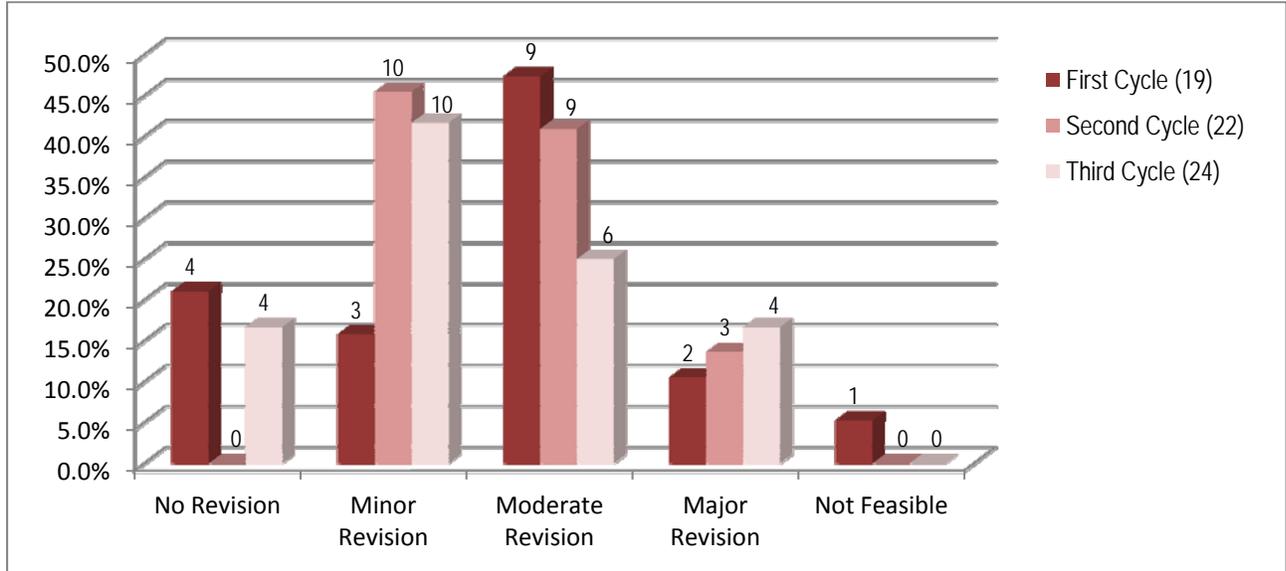
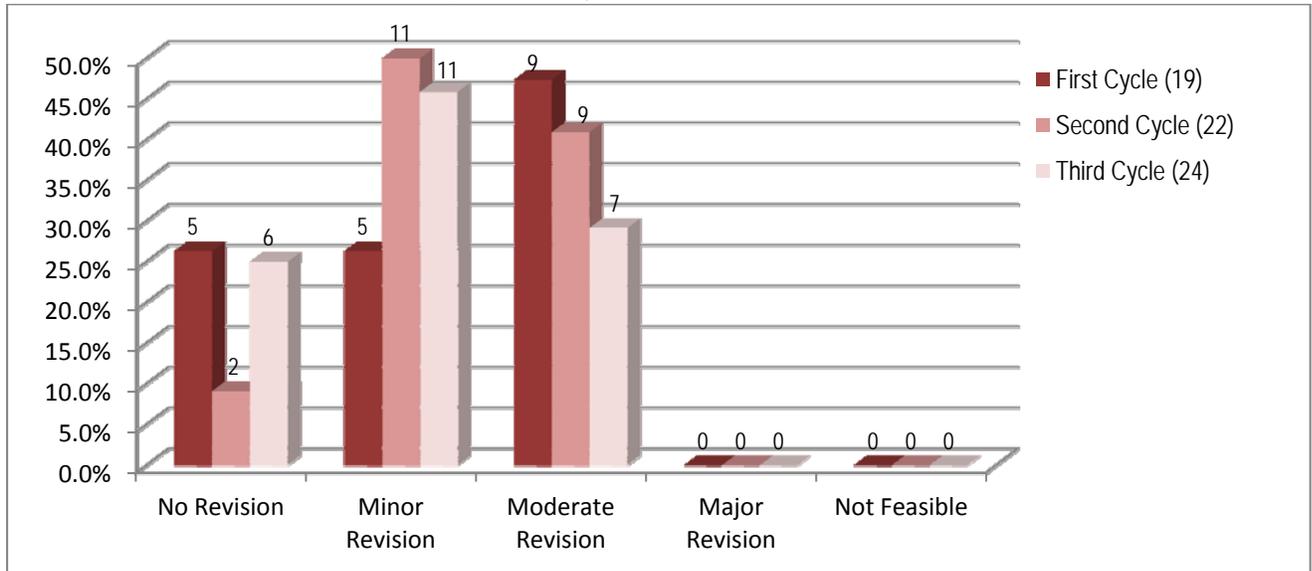


Figure 7. Final Review Scores for the First (2003), Second (2008), and Third (2014) Cycle Distribution for the NP 305 Crop Production Panels (average score 5.74; 5.60; 5.87, respectively). The number of plans reviewed by each cycle is in parentheses. Number over columns is the actual number of plans receiving that score.



## Panel Characteristics

ARS places responsibility for panel member selection primarily on external and independent Panel Chairs. ARS scientists, managers and the Office of National Programs may recommend panelists but the Panel Chair is under no obligation to use these recommendations. However, the SQRO does review and approve the Panel Chair's panel member selections. Several factors such as qualifications, diversity, and availability play a role in who is selected for an ARS peer review panel. The five panels were composed of nationally and internationally recognized experts to review 24 projects primarily coded to the Crop Production Program (see Table 1, page 2). The information and charts below provide key characteristics of the Crop Production Panels. This information should be read in conjunction with the Panel Chair Statements.

## Affiliations

Peer reviewers are affiliated with several types of institutions, especially universities, but also special interest groups and industry. In some cases, peer reviewers have recently retired but are active as consultants, scientific editorial board members, and are members of professional societies. Table 4 shows the type of institutions with which the Crop Production Panel members were affiliated with at the time of the review.

Table 4. Faculty Rank of Panelists Affiliated with Universities and Other Affiliations Represented on the Panels

Panel	Professor	Associate Professor	Assistant Professor	Government	Industry & Industry Organizations	Other
Panel 1: Small Fruit Production Management (5)	4	1				
Panel 2: Tropical and Subtropical Crops (4)	4					
Panel 3: Horticultural and Ornamental Crops (5)	1	2	1			1
Panel 4: Mechanization and Technology (5)	3		1		1	
Panel 5: Sustainable Systems (4)	4					
Panel 6: Temperate Crops (3)	2	1				
Panel 7: Bees (3)	2					1

## Accomplishments

The peer review process is intended to be rigorous and objective, striving for the highest possible scientific credibility. In general, panelists are expected to hold a PhD unless the norm for their discipline tends to not require doctorate level education to achieve the highest recognition and qualification (e.g., engineers and modeling specialists). Panelists are also judged by their most recent professional accomplishments (e.g. awards and publications completed in the last five years). Finally, the panelists who are currently performing or leading research to address a problem similar to those addressed in the National Program are preferred. Table 5 describes their characteristics in the Crop Production Panels.

Table 5. The Panels' Recent Accomplishments

Panel	Published Articles Recently	Received Recent Professional Awards	Having Review Experience	Currently Performing Research
Panel 1: Small Fruit Production Management (5)	5	4	4	5
Panel 2: Tropical and Subtropical Crops (4)	4	3	4	4
Panel 3: Horticultural and Ornamental Crops (5)	5	4	4	4
Panel 4: Mechanization and Technology (5)*	4	3	2	3
Panel 5: Sustainable Systems(4)	4	4	3	3
Panel 6: Temperate Crops (3)	3	2	3	3
Panel 7: Bees (3)*	2	2	3	1

\*Data not available.

### Current and Previous ARS Employment

The Research Title of the 1995 Farm Bill 105-585, mandated ARS's requirements for the peer review of the ARS research projects: 1) panel peer reviews of each research project were mandated at least every five years and 2) the majority of peer reviewers must be external (non-ARS) scientists. Table 6 shows the number of peer reviewers for each panel that are currently or formerly employed by ARS.

Table 6. Affiliations with ARS

Panel	Currently Employed by ARS	Formerly Employed by ARS
Panel 1: Small Fruit Production Management		1
Panel 2: Tropical and Subtropical Crops		
Panel 3: Horticultural and Ornamental Crops		
Panel 4: Mechanization and Technology		1
Panel 5: Sustainable Systems		1
Panel 6: Temperate Crops		
Panel 7: Bees		

## Crop Production Panel Chairs



**Michele Warmund, Ph.D.**

***Panel 1: Small Fruit Production Management***

Professor, Division of Plant Sciences, University of Missouri, Columbia, Missouri

Education: B.S. & M.S. Kansas State University; Ph.D. University of Missouri

Dr. Warmund's research interests are pomology, physiology, viticulture, berry crops and cultural practices.



**L. Gene Albrigo, Ph.D.**

***Panel 2: Tropical and Subtropical Crops***

Professor, Citrus Research and Education Center, University of Florida, Lake Alfred, Florida

Education: B.S. & M.S. University of California, Davis; Ph.D. Rutgers University

Dr. Albrigo's research interests are citrus flowering, fruit development, environmental stress, biotic stress and horticulture.



**Joyce Latimer, Ph.D.**

***Panel 3: Horticultural and Ornamental Crops***

Professor and Assistant Department Head for Extension, Department of Horticulture, Virginia Tech University, Blacksburg, Virginia

Education: B.S. Virginia Tech; M.S. & Ph.D. Purdue University

Dr. Latimer's interests include plant growth regulation, PGRs, herbaceous perennials and ornamental plant production.



**Daniel Reynolds, Ph.D.**

***Panel 4: Mechanization and Technology***

Professor and G.B. Triplett Endowed Chair of Agronomy, Department of Plant and Soil Sciences, Mississippi State University, Mississippi State, Mississippi



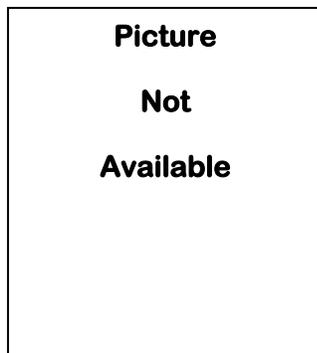
**Steve Pueppke, Ph.D.**

***Panel 5: Sustainable Systems***

Associate Vice President for Research and Graduate Studies and Director, Global and Strategic Initiatives, Michigan State University, East Lansing, Michigan

Education: B.S. Michigan State University; Ph.D. Cornell University

Dr. Pueppke's research interests are agricultural biotechnology and food systems.



**Jim Schupp, Ph.D.**

***Panel 6: Temperate Crops***

Associate Professor and Center Director, Fruit Research and Extension Center, Pennsylvania State University, Biglerville, Pennsylvania

Education: B.S. Bowling Green University; M.S. & Ph.D. The Ohio State University

Dr. Schupp's research interests include tree fruit, horticulture, crop management, labor orchard efficiency, rootstocks, orchard production systems and plant growth regulators.



**Ken Richards, Ph.D.**

*Panel 7: Bees*

Retired Research Manager, Agriculture and Agri-Food  
Canada, Saskatoon, Saskatchewan, Canada

Education: B.S. & M.S. University of Alberta; Ph.D.  
University of Kansas

Dr. Richards' research interests include genetic resources,  
plants, animals, pollinators and pollination.

## **Panel Chair Statements**

All Panel Chairs are required to turn in a statement that describes how their Panel was conducted and possibly provide comments on the review process that might not otherwise be found in the individual research project plan reviews. Panel Chairs are given some guidelines for writing their statements, but are nevertheless free to discuss what they believe is important for broad audiences.



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October 31, 2013

Dr. Joyce Loper, Scientific Quality Review Officer  
Office of Scientific Quality Review  
Agricultural Research Service, USDA  
5601 Sunnyside Avenue, MS 5142  
Beltsville, MD 20705

Dear Dr. Loper,

Thank you for the opportunity to provide some concluding remarks regarding the NP 305 Panel1: Small Fruit Production Management review process. I am pleased with the thoughtful consideration of these project plans by each of the panelists. For most of the panelists, this was their first time reviewing these types of project proposals. It was apparent that the primary and secondary panelists spent much time and effort reviewing the projects for which they were assigned, and each and every one of them also provided in-depth comments on the other two projects for which they were not principal reviewers. Based on comments from the reviewers, and my own experience, each review required about five to six hours to complete. The comments provided were constructive with explicit suggestions for strengthening the research plans.

I applaud Mike Strauss and Christina Woods for their clear instructions and their high quality on-line training tools and discussion methods. The organization of the review documents provided by the Office of Scientific Quality Review made the review process straightforward. Receiving the summary of reviewer's comments before the panel discussion was extremely helpful in preparing for a most efficient meeting. Before the panel discussion, Drs. Strauss and Woods provided immediate responses to any panelist's questions, which greatly contributed to the ease of these reviews. The ability to modify and strengthen the review documents in real time was also extremely helpful.

Choosing panelists was a bit challenging. Because of the high level of cooperation among USDA-ARS scientists and University researchers, it was difficult to find competent panelists lacking a conflict. Also, if the Chair had a better awareness of proposal content before selecting the panelists, one might better target panelists to assess the diverse subject matter contained in the proposals. Small fruit production and management covers such a broad array of topics that it might be possible under the current method of panel selection there is no guarantee that each panelist has the essential expertise to critically evaluate the proposed work. Indeed, it was serendipitous that those serving on this review panel had the expertise required to evaluate the projects. With shrinking University budgets, it may be even more difficult to find competent small fruit panelists to review these projects as retiring pomologists are not being replaced in much of the eastern part of the U.S. even though there is a great need for these scientists. On behalf of the panelists, I believe their remuneration for this work is quite low given the time invested in this review process (23 to 27 hours total). Because of this, it might be difficult to

persuade them to participate on future panels. Nevertheless, I am grateful for Dr. Strauss' prompt responses in approving the suggested reviewers during the selection process.

Overall, I believe that the review panel provided substantive comments and suggestions to assist USDA-ARS project leaders in conducting quality research with tangible results. Thank you for your consideration of these comments.

Respectfully,



Michele R. Warmund  
Professor of Horticulture &  
State Fruit Extension Specialist



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October 29, 2013

Dr. Joyce Loper, Scientific Quality Review Officer  
Office of Scientific Quality Review  
Agricultural Research Service, USDA  
5601 Sunnyside Avenue, MS 5142  
Beltsville, MD 20705

Dr. Loper:

Panel 2: Tropical and Subtropical Fruits was an expert panel as reflected by the sound and credible scientific peer review. Some of the ideas, creative thinking, and alternative approaches to improve the quality of these research projects are reflected in the suggestions made by the panel. Examples of this include:

In the case of cocoa tests for acidity, shade and drought tolerance should be more uniform between countries regarding length of evaluation in greenhouse and field studies to get evaluations from establishment to mature plants.

For tropical fruits, it was suggested that several dragon fruit types should be tested for fruit fly susceptibility as there may be differences and the investigators should evaluate susceptibility to fruit flies through marketable maturity not necessarily into senescence.

For citrus, it was suggested that the authors should concentrate on evaluating the USDA's large collection of citrus crosses that have *Poncirus trifoliata* in their lineage for possible rootstock tolerance to HLB.

The Panel took a very positive approach to these reviews as indicated by the in-depth reviews and the preparation for the discussion. Under the guideline provided for the on-line discussion a full half hour was spent on each project, and almost always the discussion continued to move forward covering new ideas for the half hour spent on each project.

The logistical arrangements for receiving materials, preparing and delivering reviews and participating in the on-line review were very straight forward with adequate time for reviewers to prepare for each step. Materials provided by Christina Woods were on time and supplied clear instructions.

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Loper  
October 29, 2013  
Page 2

The process of finding reviewers, excluding potential peer reviewers who had a conflict with the project and follow-up contact with the selected reviewers went smoothly with the assistance of Dr. Strauss. Because researchers in tropical fruits and particularly cocoa are limited in the Americas, the assistance of Dr. Strauss in establishing conflicts and suggesting other names was very useful.

I believe the instructions provided by the USDA Office of Scientific Quality Review provided us with a clear understanding of the review criteria and roles as peer reviewers. Based on the smoothness of the oral review process the reviewers appeared to understand the scoring and critique writing procedures.

I suggest that the reviews be received 5 to 7 days before the oral on-line process so that they can be returned to all reviewers with 3 or 4 days to assimilate them before the on-line process. The third reviewer should be encouraged to read and note possible improvements in the project not assigned so that additional ideas may be presented during the discussion of projects and transmitted to the project leaders.

As a review process, I think this went very well. One of the panelists noted that if an in-person review process was required, she would not have been able to participate. To do without the oral exchange would also reduce the effectiveness of the process. This appeared to be a good balance between written reviews only and an in-person oral committee review, without the in-person expense.

Sincerely,



L. Gene Albrigo  
Professor Emeritus of Horticulture  
Citrus Research and Education Center  
University of Florida



College of Agriculture  
and Life Sciences

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April 10, 2014

Dr. Joyce Loper, Scientific Quality Review Officer  
Office of Scientific Quality Review  
Agricultural Research Service, USDA  
5601 Sunnyside Avenue, MS 5142  
Beltsville, MD 20705

Dear Dr. Loper:

The reviewers of the NP 305 Panel: Horticultural and Ornamental Crops had discussions that reflected a sound and credible scientific peer review of the proposed experiments and projects. We used a variety of ideas, creative thinking, and alternative approaches to suggest improvements in the studies that would improve the overall quality of the research. Some of these may not have been previously considered by Agency scientists and staff.

The most notable characteristics of the discussion process included the high level of preparation for the discussion. The staff of the Office of Scientific Quality Review conducted the review in a timely manner and did a good job of explaining the review criteria and our roles as peer reviewers. The proposals, the summaries of the reviewer comments and the results were all prepared and distributed in a timely manner. The panel reviewers were well prepared in their assigned tasks so that we spent a reasonable amount of time discussing each project. All of us appreciated the online format of the panel review to reduce travel and time commitments while still providing our expertise to the review process. The panel scoring and the online editing of the reviewer comments also made the process go more smoothly and quickly.

I really have no suggestions on how to improve the peer review process. Your system works very well.

This was a very effective peer review panel. We made significant contributions to the projects through the questions and suggestions we made in the first round of the review. The edited projects were significantly improved (one more than the other), both scientifically and in clarity of objectives and process through addressing our questions.

Sincerely,

Professor of Horticulture and Extension Specialist

*Invent the Future*

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY  
*An equal opportunity, affirmative action institution*

**MICHIGAN STATE**  
**UNIVERSITY**

April 7, 2014

Dr. Joyce Loper, Scientific Quality Review Officer  
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5601 Sunnyside Avenue, MS 5142  
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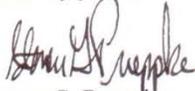
Dear Joyce,

It was a pleasure work with the other panelists and serve as Panel Chair for NP 305 Panel 5: Sustainable Systems. I read the proposals in detail, participated in all conference meetings, and carefully evaluated all comments from the three panelists. I believe that they were conscientious in fulfilling their duties as reviewers, providing creative, science-based suggestions for improvement. Each is an expert in a relevant area of science, and so they were able to offer practical advice, including alternative approaches to improve the quality and impact of the proposed research.

I had not participated in a review of this sort before, with all activities occurring electronically—but I was pleasantly surprised by the effectiveness of the process. The reviewers had clearly done their “homework.” They were willing to speak plainly, listen closely, and adjust their individual assessment based on input from other panelists. I have managed other grants panels in the past, all face-to-face, and I believe that this panel was equally effective.

I really have just one recommendation, and that is that careful attention be paid to the qualifications of the panel members and their willingness to put time into the process. The success of this panel hinged on the reviewers, and they did a marvelous job.

Sincerely yours,



Steven G. Pueppke  
Associate Vice-President for Research



Office of  
**The Vice  
President for  
Research and  
Graduate  
Studies**

Steven G. Pueppke  
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February 19, 2014

Dr. Joyce Loper, Scientific Quality Review Officer  
Office of Scientific Quality Review  
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5601 Sunnyside Avenue, MS 5142  
Beltsville, MD 20705

Dear Dr. Loper,

I Served as Chair of Temperate Crops Review Panel Six for the USDA Agricultural Research Service Crop Production National Program. The panel had discussions that reflected a sound and credible scientific review and made suggestions regarding the ideas, creative thinking, and alternate approaches to improve the quality of research for consideration by the Agency scientists and staff.

I found the review process of Panel Six to be exemplary, due to the thorough preparation and adequate discussion time that were spent on each project. There were no negative consequences relating to the logistics, despite the closure of the federal government that caused the completion of our review to be delayed until it re-opened. The panel included competent reviewers with knowledge and interest in the projects that were reviewed, the criteria and our roles were clearly delineated and understood by the panelists, as were the scoring and critique writing procedures.

In conclusion, I am pleased to report that Temperate Crops Review Panel Six was an effective review panel and I have no suggestions for improvement.

Sincerely,

James R. Schupp  
Pomologist and Center Director  
Penn State Fruit Research and Extension Center  
P. O. Box 330  
Biglerville, PA 17307

## **Panel Chair Statement**

**Date: December 8, 2013**

Dr. Joyce Loper, Scientific Quality Review Officer  
Office of Scientific Quality Review  
Agricultural Research Service, USDA  
5601 Sunnyside Avenue, MS 5142  
Beltsville, MD 20705

The NP 305 Panel on Bee Biology and Management (2013) was formed to review five research project outlines during June through November 2013. It took some effort to find qualified panel members for a number of reasons including: many of the North American bee and applied pollination researchers in Universities, Colleges or as state/provincial employees were already actively involved in the research projects and hence had conflicts of interest; this reflects the bee and pollination community is not large in population and is particularly well connected and cooperative.

One potential reviewer declined due to an already heavy workload and one person failed to return phone calls after an initial approach. One potential reviewer initially accepted, however we later had to request she withdraw as she had too many conflicts of interest. In the end two excellent reviewers agreed to serve on the panel, one an existing honey bee management person (also a current entomology department head) with emphasis on management of honey bee colonies for control of the various bee mites, pathogens and viruses. He also has a number of graduate students researching various projects, some funded by beekeeping associations. The other panel member, recently a retired department chair also researches the management of honey bee colonies for control of the various bee mites, pathogens and viruses and teaches relevant courses. Part of the chair's background has been in the development of management practices for native bees (alfalfa leafcutter and bumble bees) and the determination of pollinators and pollination requirements for a number of economically important crop species. He is also knowledgeable about genetic resources (emphasis plants, but also animal, fungi and plant viruses). This combination of reviewers' expertise was particularly worthy considering the strong mixture of practical bee management and basic bee/mite/pests/pathogens/viruses biology expressed in the five projects to be reviewed. One reviewer was surprised at the size of the projects (more work per project required) as thought they would be individual projects versus team projects – hence more clarity is required when approaching panelists as to the amount of work and time required.

The panel initially intended to meet via phone/video conference in early October, but the US government national shut down of all operations and activities postponed that date. A second attempt was made for mid November, but this attempt was postponed as one of the reviewers had the passing of a close relative and the funeral conflicted with the date. A meeting was eventually held near the end of November. The two subject experts served as principal reviewers for two projects each, while the chair acted as a primary reviewer for one project. Each project plan received a secondary reviewer as well. The primary and some secondary project plans were slow

to be received by the OSQR office. However, the primary reviewer was able to combine the secondary reviews just before the initial tele/video conference. With the two delays in meeting time there was more than sufficient time to review the five projects, although one reviewer remarked he didn't recall everything he had initially written. In reality this was not a problem.

Very good initial drafts of reviews reflected on the positive aspects of each project and also provided some areas for improvement. Detailed discussions on each project were held which highlighted the positive and areas for improvement. During the discussion all reviewers provided worthy and relevant comments in addition to the written reviewer's comments. The project plans had no duplication of effort/approach among them even when researching the same mite or fungal species or viruses. This reflects the expertise of the five principle research leaders and the connectedness among them. Interestingly each project had a mixture of experienced senior researchers and less experienced junior researchers; this bodes well for the future continuance of the national USDA bee program. One panelist remarked on the unevenness in writing among the projects and wondered about the pre submission review of them by colleagues, area offices or National Program staff. This was particularly true for the James project which had little connectedness among objectives and suffered from too many random subobjectives/hypotheses.

The need and rationale for each research plan was well explained. The past impacts (delivery of new control strategies for pests, pathogens or viruses, new breeding lines or enhanced understanding of biology for them) were impressive. The anticipated products looked promising, relevant and should deliver good commercial impact, new knowledge and research leading to a direction forward to help reduce the continent decline in bee species and populations. The customers/producers appeared to be kept in mind most of the time during the design and delivery of the research. This was not always the case for the James project, where familiarity with the alfalfa leafcutter beekeepers seemed lacking as to what they might do (or historically have not done) for improved management of the bees or their investment in time or equipment.

All plans integrated various practical beekeeping management methodologies with investigations of biological phenomenon. In a couple of the plans, split plot experimental design would lead to too small a sample size to be able to provide meaningful results or the sample size was confounded by lack of true replication. It was suggested consultation with a statistician would help effectiveness. Some plans (Rinderer, Evans) also effectively used a number of molecular techniques such as high-resolution gene sequences, new phenotyping approaches for quantitative trait analysis, dissecting the genetic structure of complex traits and functional characterization of their constituent genes and genome-assisted breeding approaches for dealing with complex traits in honey bee breeding or appropriate virus analysis. Panelists believed the research on Nosema would have high industry up take and broad application.

Panel members had sufficient time to receive and prepare for the teleconference discussion. The time for discussion of each project was adequate and more time was available if required. The providing of appropriate documents to panelists was timely and reminders of submission dates and time/date for the teleconference were appreciated. The computer/phone connection worked

as expected. The panelists understood the review criteria and their role in the process; they undertook this role seriously. Final scores were relatively similar among the panelists reflecting the agreement in thought about projects. There was some duplication of comments between the primary and secondary reviews, hence some editing of final text required and agreement to content. Some additional comments were added to the final texts reflecting the discussions held. This enhanced the overall quality of the reviews and provided worthy feed back to the researchers.

Overall, panelists were impressed with the effort the USDA/ARS was taking to seek external input on projects and to improve the quality of national bee research initiative. Panelists would be willing to participate again at some time.

The chair very much appreciated the efforts and patience of the OSQR office in vetting the names of potential panel members. He also appreciated the flexibility demonstrated by the OSQR office in arranging the logistics of the meeting, especially considering two delays with the tele/video conference.

Overall, I believe this was an effective peer review panel composed of highly qualified researchers representing a broad understanding of honey bee and native bee management and biology in North America.

Sincerely  
Ken Richards, Research Manager (retired)  
Canadian Genetic Resources Program  
Agriculture and Agri-Food Canada

## **Projects Reviewed by the Crop Production Panels**

### **Beltsville Area**

**Virupax Baligar**

Sustainable Production Systems for Cacao

**Jay Evans**

Managing Honey Bees Against Disease and Colony Stress

### **Mid South Area**

**Warren Copes**

Production and Disease and Pest Management of Horticultural Crops

**Richard Johnson**

New Crop and Soil Management Systems to Improve Sugarcane  
Production Efficiency

**Krishna Reddy**

Development of Productive, Profitable, and Sustainable Crop Production  
Systems for the Mid-South

**Thomas Rinderer**

Genetics and Breeding in Support of Honey Bee Health

**Steven Thomson**

Application Technologies to Improve the Effectiveness of Chemical and  
Biological Crop Protection Materials

### **Mid West Area**

**Russell Gesch**

Enhancing Cropping System Sustainability through New Crops and  
Management Strategies

**James Locke**

Development of Technologies and Strategies for Sustainable Crop  
Production in Containerized and Protected Horticulture Systems

**Heping Zhu**

Improved Pest Control Application Technologies for Sustainable Crop  
Protection

## **North Atlantic Area**

### **Fumioni Takeda**

Production Management Research for Berry Crops

### **Thomas Tworkoski**

Integrated Orchard Management and Automation for Deciduous Tree Fruit Crops

## **Northern Plains Area**

### **Rosalind James**

Managing and Conserving Diverse Bee Pollinators for Sustainable Crop Production and Wildland Preservation

## **Pacific West Area**

### **Kirk Anderson**

Understanding Honey Bee Microbiota to Improve Bee Nutrition and Colony Health

### **Kendra Baumgartner**

Sustained Vineyard Production Systems

### **David Bryla**

Integrated Water and Nutrient Management Systems for Sustainable and High-Quality Production of Temperate Fruit and Nursery Crops

### **Cai Zhong Jiang**

Improvement of Postharvest Performance of Ornamentals Using Molecular Genetic Approaches

### **Jingmin Lee**

Improving the Quality of Grapes, Other Fruits, and Their Products through Agricultural Management

### **William Meikle**

Determining the Impacts of Pesticide- and Nutrition-Induced Stress on Honey Bee Colony Growth and Survival

## **South Atlantic Area**

### **James Albano**

Algal-Based Water Treatment Technologies for Sustainable Horticultural Crop Production

**Ricardo Goenaga**

Management Strategies to Improve Subtropical/Tropical Fruit Crop  
Production

**Thomas McCollum**

Horticultural, Physiological, and Genetic Factors Affecting Sustainable  
Citrus Production

**Bruce Wood**

Mitigating Alternate Bearing of Pecan

**Southern Plains Area**

**Wesley Hoffman**

Aerial Application Technology for Sustainable Crop Production

### **Office of Scientific Quality Review**

The Office of Scientific Quality Review manages and implements the ARS peer review system for research projects, including peer review policies, processes and procedures. OSQR centrally coordinates and conducts panel peer reviews for project plans with ARS' National Program every five years.

OSQR sets the schedule of National Program Review sessions. The OSQR Team is responsible for:

- Panel organization and composition (number of panels and the scientific disciplines needed).
- Distribution of project plans
- Reviewer instruction and panel orientation
- The distribution of review results in ARS
- Notification to panelists of the Agency response to review recommendations
- *Ad hoc* or re-review of project plans

### **Contact**

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